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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,111	02/20/2004	Masami Kameda	16869S-106900US	6926

20350	7590	05/22/2007
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EXAMINER	
BIAGINI, CHRISTOPHER D	

ART UNIT	PAPER NUMBER
2142	

MAIL DATE	DELIVERY MODE
05/22/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/784,111	<b>Applicant(s)</b> KAMEDA, MASAMI	
	<b>Examiner</b> Christopher D. Biagini	<b>Art Unit</b> 2142	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/20/2004, 9/2/2005</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 1 is objected to because of the following informalities: the word "that" appears to have been inadvertently omitted from the phrase "A computer system transfers data...." Appropriate correction is required.

### ***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claim 16 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.
4. Functional descriptive material ("a program") is not statutory in the absence of a structurally and functionally interrelated computer-readable medium. See MPEP § 2106.01.

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claims 6-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. As to claim 6, the claim introduces blocks and pluralities of blocks several times on lines 12-16, but refers to "the block" on line 17. It is unclear to which block this refers.

8. As to claim 7, lines 5-6 recite "the plurality of blocks," but this may refer to any of the blocks or pluralities of blocks previously introduced. Consequently, the claim is unclear.

9. As to claim 8, lines 6 and 11 recite "the block" and "the plurality of blocks," respectively, but these may refer to any of the blocks or pluralities of blocks previously introduced. Consequently, the claim is unclear.

10. As to claims 10 and 16, the claims are generally narrative and indefinite, failing to conform to current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. The Examiner recommends rewriting the claims to clearly delineate the steps performed.

11. Any claim not specifically addressed above is rejected as inheriting the deficiencies of a parent claim upon which it depends. Additionally, the list of issues presented above is not exhaustive.

***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1, 2, 6, 9, 10, and 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Soltis (US PG PUB 2002/0083120).

14. As to claim 1, Soltis shows a computer system that transfers data from a first storage unit (Nasan client 142: see Fig. 11) to a second storage unit (NAS server 106) via a network, said computer system comprising:

a. a first controller (Nasan file system 322) which transfers data stored in said first storage unit, to said second storage unit using a block transfer protocol (see [0147] and note that Nasan layer 322 can "service the [write] request using the SAN write data-path 326," and that the SANs make use of a block-level protocol, as described in [0052]);

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- b. a table which associates a file composed of a plurality of blocks of data with blocks of data constituting the file (comprising an allocation table: see Fig. 6 and [0010]-[0012]); and
- c. a second controller (remote file system 156), which, in response to information that identifies a block from said first controller, identifies a file corresponding to the block using said table and transfers the identified file to said second storage unit using a file transfer protocol (see [0152] and note that the NAS data-path 148 makes use of a file-level protocol, as described in [0029]).

Note that Nasan file system 322 necessarily sends remote file system 156 "information that identifies a block," since any information that specifies a file for transfer also identifies a corresponding block. Similarly, in order to transfer the file, remote file system 156 must use the allocation table to identify it.

15. As to claim 2, Soltis shows the limitations of claim 1 as applied above, and further shows wherein the transfer using the block transfer protocol is performed via a SAN (Storage Area Network) and the transfer using the file transfer protocol is performed via a LAN (Local Area Network). See Fig. 11.

16. As to claim 6, Soltis shows a computer system that transfers data from a first storage unit (Nasan client 150) to a second storage unit (NAS server 106) via a first network (SAN 128) and a second network (LAN 104), said computer system comprising:

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- a. a first controller (Nasan file system 322) that transfers data, stored in said first storage unit, to said second storage unit on a block basis via the first network (see [0147] and note that Nasan layer 322 can “service the [write] request using the SAN write data-path 326,” and that the SANs make use of a block-level protocol, as described in [0052]); and
- b. a second controller (remote file system 156) that transfers data, stored in said first storage unit, to said second storage unit on a file basis via the second network (see [0152] and note that the NAS data-path 148 makes use of a file-level protocol, as described in [0029]),
- c. wherein said second controller manages an association between a file composed of a plurality of blocks of data and the blocks of data constituting the file (a necessary function of any filesystem: see [0003] and [0010]-[0012]), and, upon receiving information identifying a block from said first controller, transfers a file including data of the block to said second storage unit on a file basis (see [0152]).

17. As to claim 9, Soltis shows the limitations of claim 6 as applied above, and further shows wherein said first controller and said second controller are in the same cabinet (comprising the cabinet which encloses Nasan client 142).

18. As to claim 10, the claim contains subject matter similar to claims 1 and 6, and is rejected for the same reasons.

19. As to claim 14, Soltis shows the limitations of claim 10 as applied above, and further shows wherein said computer system notifies information identifying a block address to said first controller to request to transfer data on a block basis. Note that write requests from application programs 150 necessarily send remote file system 156 "information identifying a block," since any information that specifies a file for transfer also identifies a corresponding block. See [0147].

20. As to claim 15, Soltis shows the limitations of claim 14 as applied above, and further shows wherein the data transfer on a block basis and the data transfer on a file basis use different networks (see Fig. 11).

21. As to claim 16, the claim contains subject matter similar to claims 1 and 6, and is rejected for the same reasons.

### ***Claim Rejections - 35 USC § 103***

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

23. Claims 3-5, 7, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soltis in view of Ayres (US Pat. No. 7,134,040).



24. As to claim 3, Soltis shows the limitations of claim 1 as applied above, and further shows said first controller notifying information identifying a block to said second controller based on "numerous factors" (see [0147]), but does not show that one of those factors is the detection of a transfer failure.

25. Ayres shows notifying a controller (comprising an available adapter 12a or 12b) of information identifying a block (comprising a current device position) based on the detection of a transfer failure (see col. 6, line 23 to col. 7, line 10).

26. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Soltis with the notification of information taught by Ayres in order to automatically choose an available path to a storage device when the initial path fails (see col. 1, lines 53-61).

27. As to claim 4, the combination of Soltis and Ayres shows the limitations of claim 3 as applied above, and further shows wherein the identified file includes data of blocks other than the block related to the transfer failure (see Soltis, [0010], which described that files typically contain multiple data blocks).

28. As to claim 5, the combination of Soltis and Ayres shows the limitations of claim 4 as applied above, and further shows wherein the data of blocks other than the block related to the transfer failure is data that has been transferred by said first controller

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using the block transfer protocol (note that, as taught by Ayres, the failure may occur after data has already been transferred: see col. 6, lines 23-28).

29. As to claim 7, Soltis shows the limitations of claim 6 as applied above, but does not show wherein, when the transfer on a file basis fails, said second controller identifies a plurality of blocks related to the transfer-failed file and instructs said first controller to transfer data of the plurality of blocks.

30. Ayres shows when a transfer fails, a controller (device driver 8) identifies a plurality of blocks (comprising the block remaining to be transferred) related to the transfer-failed file and instructs a second controller (comprising an available adapter 12a or 12b) to transfer data of the plurality of blocks (see col. 6, line 23 to col. 7, line 10).

31. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Soltis with the notification of information taught by Ayres in order to automatically choose an available path to a storage device when the initial path fails (see col. 1, lines 53-61).

32. As to claim 13, Soltis shows the limitations of claim 10 as applied above, and further shows said first controller notifying information identifying a block address to said second controller based on "numerous factors" (see [0147]), but does not show that one of those factors is the detection of a transfer failure.

33. Ayres shows notifying a controller (comprising an available adapter 12a or 12b) of information identifying a block address (comprising a current device position) based on the detection of a transfer failure (see col. 6, line 23 to col. 7, line 10).

34. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Soltis with the notification of information taught by Ayres in order to automatically choose an available path to a storage device when the initial path fails (see col. 1, lines 53-61).

35. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Soltis in view of Ayres, and further in view of Duncan et al. (US PG PUB 2004/0098637, hereinafter "Duncan").

36. The combination of Soltis and Ayres shows the limitations of claim 7 as applied above, but does not show wherein said first storage unit comprises a main volume and a sub volume that store the same contents of data and wherein, when a transfer of data, stored on said sub volume, on a block basis fails, said first controller notifies information identifying the block of transfer-failed data to said second controller and, in response to an instruction to transfer data of a plurality of blocks related to the transfer-failed file from said second controller, transfers data corresponding to the plurality of blocks, stored on said main volume, on a block basis.

37. Ayres shows notifying information identifying blocks of transfer-failed data (comprising a current device position) and instructing a controller to transfer data

corresponding to the plurality of blocks (comprising an available adapter 12a or 12b).

See col. 6, line 23 to col. 7, line 10.

38. Duncan shows a first storage unit (storage device 130) comprising a main volume (secondary storage system 118) and a sub volume (primary storage system 108) that store the same contents of data (see [0021]). Duncan further shows wherein transfer of data stored on said sub-volume fails, transferring data stored on said main volume (see [0025]).

39. It would have been obvious to further modify the system of Soltis in view of Ayres with the notifying and instructing taught by Ayres in order to identify data which needs to be transferred. It would have been obvious to further modify the system of Soltis in view of Ayres with the failure handling of Duncan in order to provide volume failover from one array to another in a manner transparent to a host operating system (see Duncan, [0006]).

40. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soltis in view of Tzelnic (US Pat. No. 5,948,062).

41. As to claim 11, Soltis shows the limitations of claim 10 as applied above, but does not show wherein said second controller transfers a management table, which associates the information identifying block addresses with a file identifier, to said other computer when data is transferred on a file basis.

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42. Tzelnic shows transferring a management table which associates information identifying block addresses with file identifiers (see col. 11, lines 1-5 and col. 12, lines 12-15).

43. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Soltis with the management table transfer taught by Tzelnic in order to maintain consistency between storage devices (see Tzelnic, col. 11, lines 6-8).

44. As to claim 12, Soltis shows the limitations of claim 10 as applied above, but does not show wherein the information identifying a block address is a logical block address.

45. Tzelnic shows logical block addresses (see col. 12, lines 12-15).

46. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Soltis with logical block addresses as taught by Tzelnic in order to provide a layer of abstraction between the addresses applications use to access data and the physical location of blocks on disk.

### ***Conclusion***

47. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

48. Takamatsu et al. (US Pat. No. 5,119,488) shows selecting an access path for I/O requests in the event a first path fails.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher D. Biagini whose telephone number is (571) 272-9743. The examiner can normally be reached on M-R 7:30-5, 7:30-4 alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on (571) 272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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May 17, 2007

  
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